



# "Bloody 98" Out of the *Darkness*, Into the *Light*An Innovative Lighting Project



# "Bloody 98" Out of the *Darkness*, Into the *Light*An Innovative Lighting Project

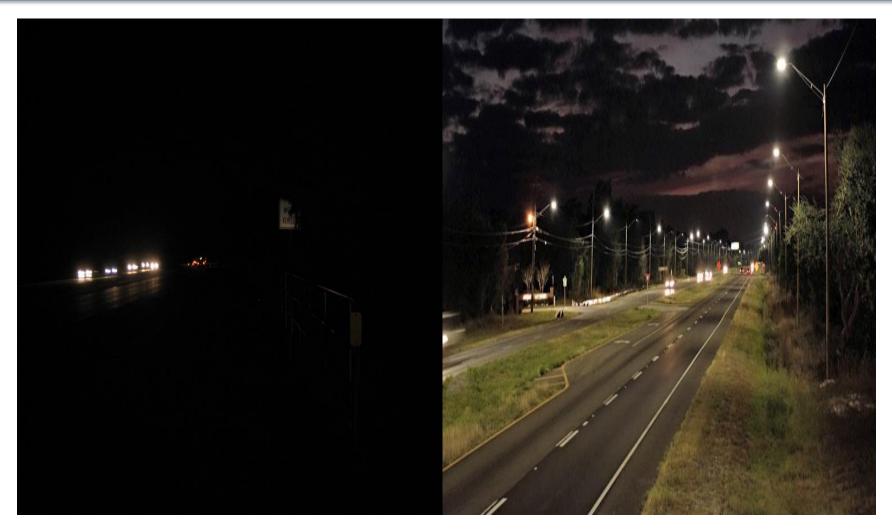
District 3 Traffic Design
JC Spivey
Anna Harlson
Katie Rogers
Stan Rudd

#### **OVERVIEW**

- SR 30 (US 98) Safety Lighting Project
  - High priority issue requiring department action
  - JPA with Gulf Power
  - Innovation with LED lighting



# **OVERVIEW**

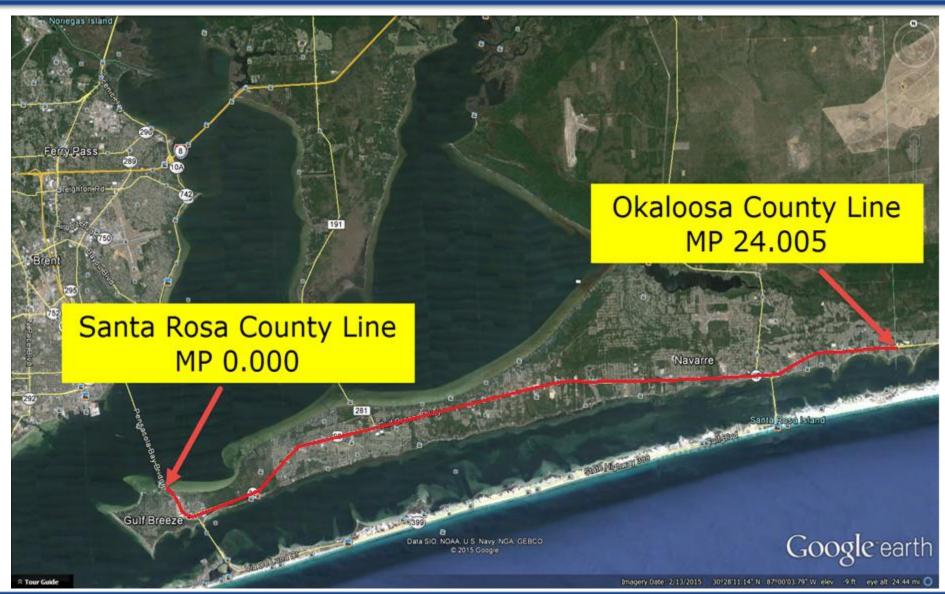


Out of the **DARKNESS** 

Into the *LIGHT* 

#### **AERIAL**

# SR 30 (US 98) Santa Rosa County



#### **HISTORY**

- Growing communities with a large number of commuters (AADT 43,000+)
- High-speed highway (posted 55 mph in most of the project ), 4 Lane suburban functioning as urban
- Increased crashes involving pedestrians and bicyclists

#### PRECIPITATING EVENTS

- Three nighttime pedestrian deaths in 11 days
- Public outcry
- Negative media coverage
- Local government request for state intervention





#### LETTER OF CONCERN

#### APPENDIX A



JIM MELVIN, District 4 R, LANE LYNCHARD, District 5

#### SANTA ROSA COUNTY **BOARD OF COMMISSIONERS**

Santa Rosa Administrative Offices 6495 Caroline Street, Suite M Milton, Florida 32570-4592



Board

ANGELA J. JONES, County Attorney JOEL D. HANIFORD, OMB Director

March 26, 2012

Mr. James Barfield, District Secretary Florida Department of Transportation

RECEIVED MAR 2 8 2012 **ADMINISTRATION** 

County

the Santa

Commissioners of distributed the recent rash of three distributed the recent rash of three distributed the recent rash

Two (2) of the potential restriction where the first signals fatalities and recognized and properly timed at the intersection where installed of *three* 

Thank you for your cooperation and assistance. Please contact this office with guestions.

Hunter Walker

Sincerely,

County Administrator

cc: Roger Blaylock Nancy Model

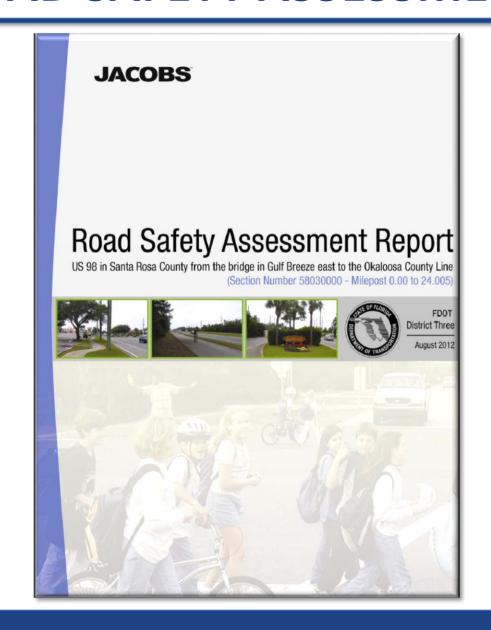
(850-983-1877 Voice + 850-983-1856 Fax) + http://www.santarosa.fl.gov

US 98 Road Safety Assessment Report

**JACOBS** 



# **ROAD SAFETY ASSESSMENT**



#### **AREA DESCRIPTION**

- Gulf Breeze Milepost 0.000 to Milepost 2.000
  - Four to six lanes
  - Sidewalks on both sides
  - Grass median
  - Urban arterial
  - Curb and gutter



#### **AREA DESCRIPTION**

- Milepost 2.000 to Milepost 4.608
  - Four lane divided highway
  - Paved shoulder

 Shared use path along the south side of the road that runs through Naval Live Oaks State

Park



#### **AREA DESCRIPTION**

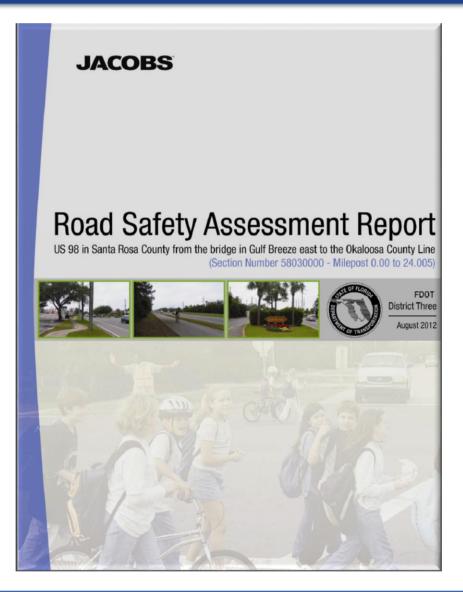
- Milepost 4.608 to Milepost 24.005
  - Rural typical in an urban area AADT 43,000+
  - Four lane divided highway
  - Flush shoulders with grass median

Signalized intersections, multiple business

driveways and neighborhood entrances



#### RSA CONCLUSIONS



- Recommendations from RSA
  - Evaluate corridor for lighting
  - Add lighting to each intersection

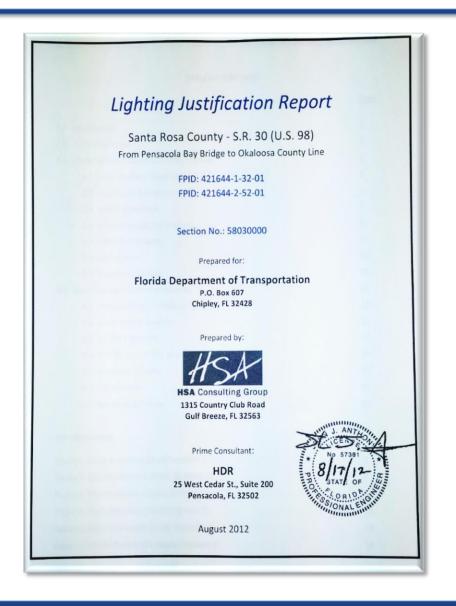
	TIMELINE
March 23, 2012	Letter of concern
May 2 and 3, 2012	Road safety assessment
May 21, 2012	RSA presentation
July 11, 2012	Gulf Power meeting
August 17, 2012	Lighting justification report
September 6, 2012	Second meeting with Gulf Power (lighting options)
September 10, 2012	Meeting with FDOT D3 Directors
September 27, 2012	Began working on JPA
October 22, 2012	Gulf Power test sections
January 24, 2013	Lighting contract signed
February 28, 2013	Began Phase I
May 31, 2013	Completed Phase I
June 30, 2013	Began Phase II
December 31, 2013	Completed Phase II
April 1, 2014	Final invoice

# HPS vs LED



	TIMELINE		
March 23, 2012	Letter of concern		
May 2 and 3, 2012	Road safety assessment		
May 21, 2012	RSA presentation		
July 11, 2012	Gulf Power meeting		
Aug 17, 2012	Lighting justification report		
September 6, 2012	Second meeting with Gulf Power (lighting options)		
September 10, 2012	Meeting with FDOT D3 Directors		
September 27, 2012	Began working on JPA		
October 22, 2012	Gulf Power test sections		
January 24, 2013	Lighting contract signed		
February 28, 2013	Began Phase I		
May 31, 2013	Completed Phase I		
June 30, 2013	Began Phase II		
December 31, 2013	Completed Phase II		
April 1, 2014	Final invoice		

### LIGHTING JUSTIFICATION REPORT



#### LIGHTING JUSTIFICATION

- Two study segments
- Traffic counts
- Crash history
- AADT/crash rates
- AASHTO criteria
- NCHRP Report 152 warrant criteria
- Benefit-cost ratio criteria
- Recommendation

- 2.4 miles
- Underdeveloped segment of US 98
- Lies in the Naval Live Oaks Reserve (NLOR)
- Historic site



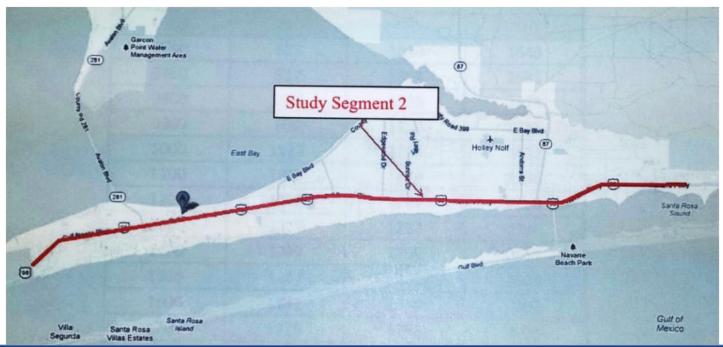
YEAR	2006	2007	2008	2009	2010	TOTAL	YEARLY AVERAGE
CRASHES	7	2	8	6	13	36	7.2
CRASHES (DAYTIME)	4	2	8	4	9	27	5.4
CRASHES (NIGHTTIME UNLIGHTED)		0	0	2	4	9	1.8



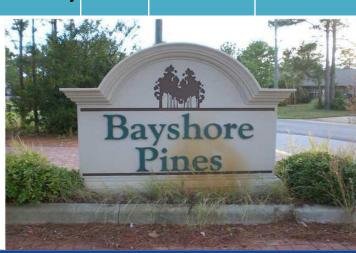
- AASHTO Warranting Conditions for Continuous Freeway Lighting (CFL)
  - CFL-1: Sections in and near cities where the current average daily traffic is 30,000 or greater.
- NCHRP- Report 152 Warrant- Highway Lighting Warrant- Not warranted
- Benefit Cost Ratio- The BCR was less than 1.0, highway lighting was not justified.

Conclusion: Based on the findings, highway lighting was not recommended at this time for Naval Live Oaks Reserve segment of this corridor.

- 19.5 mile segment
- US 98 from Bayshore Rd to the Okaloosa County line
- Large number of low to medium density commercial developments and residential subdivisions



YEAR	2006	2007	2008	2009	2010	TOTAL	YEARLY AVERAGE
CRASHES	384	287	250	301	316	1538	307.6
CRASHES (DAYTIME)	280	214	176	216	234	1120	224.0
CRASHES (NIGHTTIME UNLIGHTED)		73	74	85	82	418	83.6





- AASHTO Warranting Conditions for Continuous Freeway Lighting (CFL)
  - CFL-1: Sections where the current ADT is 30,000 or greater.
  - CFL-3b: The freeway passes through a series of developments that are lighted.
- NCHRP- Report 152 Warrant- Highway Lighting Warrant-Warranted
  - Automatically met since the ratio of nighttime to daytime crashes is 2.09, which is greater than 2.0.
- Benefit Cost Ratio- The BCR was greater than 1.0, highway lighting justified.

Conclusion: Based on the findings, highway lighting was recommended at this time for this segment of the corridor.

#### **RECOMMENDATION:**

Install continuous highway lighting on SR 30 (US 98) for study segment 2.

	TIMELINE		
March 23, 2012	Letter of concern		
May 2 and 3, 2012	Road safety assessment		
May 21, 2012	RSA presentation		
July 11, 2012	Gulf Power meeting		
August 17, 2012	Lighting justification report		
Sept 6, 2012	Second meeting with Gulf Power		
September 10, 2012	Meeting with FDOT D3 Directors		
September 27, 2012	Began working on JPA		
October 22, 2012	Gulf Power test sections		
January 24, 2013	Lighting contract signed		
February 28, 2013	Began Phase I		
May 31, 2013	Completed Phase I		
June 30, 2013	Began Phase II		
December 31, 2013	Completed Phase II		
April 1, 2014	Final invoice		

	TIMELINE
March 23, 2012	Letter of concern
May 2 and 3, 2012	Road safety assessment
May 21, 2012	RSA presentation
July 11, 2012	Gulf Power meeting
August 17, 2012	Lighting justification report
September 6, 2012	Second meeting with Gulf Power (lighting options)
Sept 10, 2012	Meeting with D3 Executive Staff
September 27, 2012	Began working on JPA
October 22, 2012	Gulf Power test sections
January 24, 2013	Lighting contract signed
February 28, 2013	Began Phase I
May 31, 2013	Completed Phase I
June 30, 2013	Began Phase II
December 31, 2013	Completed Phase II
April 1, 2014	Final invoice

#### PROJECT CONSIDERATIONS

- Construction Cost
  - DOT estimate: \$5 \$6.5 million
  - Gulf Power's estimate (JPA): \$2.5 million
- Lighting Design
  - DOT (design cost to be determined)
    - HPS
  - Gulf Power (design cost included)
    - LED With test section approval
    - HPS Back-up
  - Fixture Selection Gulf Power
- Operation and Maintenance
  - Included in monthly power bill under current Santa Rosa County agreement

	TIMELINE
March 23, 2012	Letter of concern
May 2 and 3, 2012	Road safety assessment
May 21, 2012	RSA presentation
July 11, 2012	Gulf Power meeting
August 17, 2012	Lighting justification report
September 6, 2012	Second meeting with Gulf Power (lighting options)
September 10, 2012	Meeting with D3 Executive Staff
Sept 27, 2012	Began working on JPA
October 22, 2012	Gulf Power test sections
January 24, 2013	Lighting contract signed
February 28, 2013	Began Phase I
May 31, 2013	Completed Phase I
June 30, 2013	Began Phase II
December 31, 2013	Completed Phase II
April 1, 2014	Final invoice

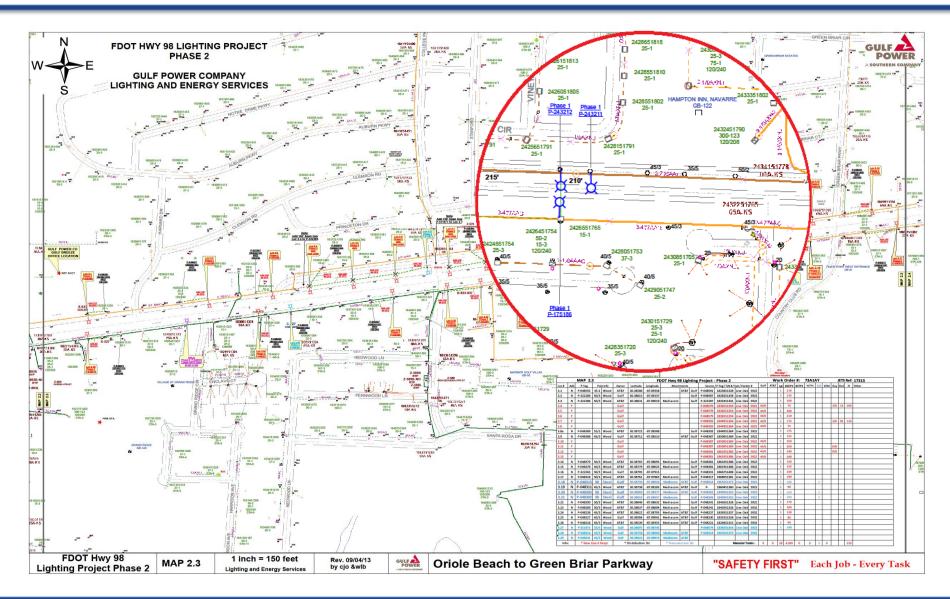
	TIMELINE
March 23, 2012	Letter of concern
May 2 and 3, 2012	Road safety assessment
May 21, 2012	RSA presentation
July 11, 2012	Gulf Power meeting
August 17, 2012	Lighting justification report
September 6, 2012	Second meeting with Gulf Power (lighting options)
September 10, 2012	Meeting with D3 Executive Staff
September 27, 2012	Began working on JPA
Oct 22, 2012	Gulf Power test sections
January 24, 2013	Lighting contract signed
February 28, 2013	Began Phase I
May 31, 2013	Completed Phase I
June 30, 2013	Began Phase II
December 31, 2013	Completed Phase II
April 1, 2014	Final invoice

	TIMELINE		
March 23, 2012	Letter of concern		
May 2 and 3, 2012	Road safety assessment		
May 21, 2012	RSA presentation		
July 11, 2012	Gulf Power meeting		
August 17, 2012	Lighting justification report		
September 6, 2012	Second meeting with Gulf Power (lighting options)		
September 10, 2012	Meeting with D3 Executive Staff		
September 27, 2012	Began working on JPA		
October 22, 2012	Gulf Power test sections		
Jan 24, 2013	Lighting contract signed		
February 28, 2013	Began Phase I		
May 31, 2013	Completed Phase I		
June 30, 2013	Began Phase II		
December 31, 2013	Completed Phase II		
April 1, 2014	Final invoice		

	TIMELINE		
March 23, 2012	Letter of concern		
May 2 and 3, 2012	Road safety assessment		
May 21, 2012	RSA presentation		
July 11, 2012	Gulf Power meeting		
August 17, 2012	Lighting justification report		
September 6, 2012	Second meeting with Gulf Power (lighting options)		
September 10, 2012	Meeting with D3 Executive Staff		
September 27, 2012	Began working on JPA		
October 22, 2012	Gulf Power test sections		
January 24, 2013	Lighting contract signed		
Feb 28, 2013	Began Phase I		
May 31, 2013	Completed Phase I		
June 30, 2013	Began Phase II		
December 31, 2013	Completed Phase II		
April 1, 2014	Final invoice		

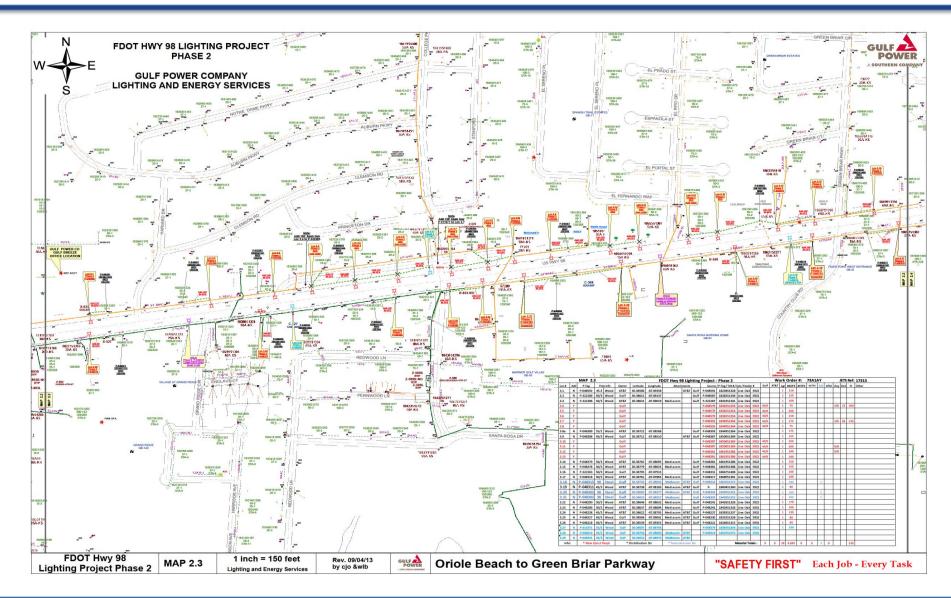
	TIMELINE		
March 23, 2012	Letter of concern		
May 2 and 3, 2012	Road safety assessment		
May 21, 2012	RSA presentation		
July 11, 2012	Gulf Power meeting		
August 17, 2012	Lighting justification report		
September 6, 2012	Second meeting with Gulf Power (lighting options)		
September 10, 2012	Meeting with D3 Executive Staff		
September 27, 2012	Began working on JPA		
October 22, 2012	Gulf Power test sections		
January 24, 2013	Lighting contract signed		
February 28, 2013	Began Phase I		
May 31, 2013	Completed Phase I		
June 30, 2013	Began Phase II		
December 31, 2013	Completed Phase II		
April 1, 2014	Final invoice		

# **PROJECT DESCRIPTION**



TIMELINE		
March 23, 2012	Letter of concern	
May 2 and 3, 2012	Road safety assessment	
May 21, 2012	RSA presentation	
July 11, 2012	Gulf Power meeting	
August 17, 2012	Lighting justification report	
September 6, 2012	Second meeting with Gulf Power (lighting options)	
September 10, 2012	Meeting with D3 Executive Staff	
September 27, 2012	Began working on JPA	
October 22, 2012	Gulf Power test sections	
January 24, 2013	Lighting contract signed	
February 28, 2013	Began Phase I	
May 31, 2013	Completed Phase I	
June 30, 2013	Begin Phase II	
December 9, 2013	Nighttime Field Review	
December 31, 2013	Completed Phase II	
April 1, 2014	Final invoice	

# **PROJECT DESCRIPTION**



TIMELINE		
March 23, 2012	Letter of concern	
May 2 and 3, 2012	Road safety assessment	
May 21, 2012	RSA presentation	
July 11, 2012	Gulf Power meeting	
August 17, 2012	Lighting justification report	
September 6, 2012	Second meeting with Gulf Power (lighting options)	
September 10, 2012	Meeting with D3 Executive Staff	
September 27, 2012	Began working on JPA	
October 22, 2012	Gulf Power test sections	
January 24, 2013	Lighting contract signed	
February 28, 2013	Began Phase I	
May 31, 2013	Completed Phase I	
June 30, 2013	Began Phase II	
Dec 9, 2013	Nighttime Field Review	
December 31, 2013	Completed Phase II	
April 1, 2014	Final invoice	

TIMELINE		
March 23, 2012	Letter of concern	
May 2 and 3, 2012	Road safety assessment	
May 21, 2012	RSA presentation	
July 11, 2012	Gulf Power meeting	
August 17, 2012	Lighting justification report	
September 6, 2012	Second meeting with Gulf Power (lighting options)	
September 10, 2012	Meeting with D3 Executive Staff	
September 27, 2012	Began working on JPA	
October 22, 2012	Gulf Power test sections	
January 24, 2013	Lighting contract signed	
February 28, 2013	Began Phase I	
May 31, 2013	Completed Phase I	
June 30, 2013	Began Phase II	
December 9, 2013	Nighttime Field Review	
Dec 31, 2013	Completed Phase II	
April 1, 2014	Final invoice	

TIMELINE		
March 23, 2012	Letter of concern	
May 2 and 3, 2012	Road safety assessment	
May 21, 2012	RSA presentation	
July 11, 2012	Gulf Power meeting	
August 17, 2012	Lighting justification report	
September 6, 2012	Second meeting with Gulf Power (lighting options)	
September 10, 2012	Meeting with D3 Executive Staff	
September 27, 2012	Began working on JPA	
October 22, 2012	Gulf Power test sections	
January 24, 2013	Lighting contract signed	
February 28, 2013	Began Phase I	
May 31, 2013	Completed Phase I	
June 30, 2013	Began Phase II	
December 9, 2013	Nighttime Field Review	
December 31, 2013	Completed Phase II	
April 1, 2014	Final Invoice	

#### **FINAL RESULT**

#### Santa Rosa County US 98 Lighting Project (Final Figures)

#### Timeframe:

- 2 Years From Letter of Concern to Final Invoice/Project Complete
- Gulf Power installed 993 luminaires over 19.5 Miles
- Original Cost Estimate: \$2,500,000.00
- Total Cost of Project: \$1,546,844.00

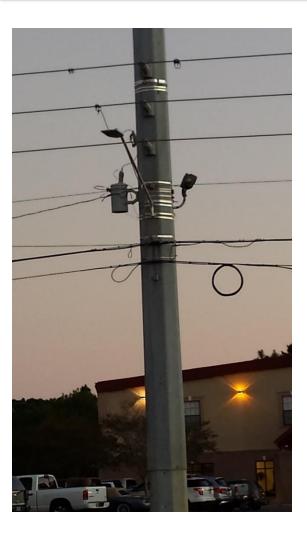
Remember: DOT Estimate: \$5 - \$6.5 Million (Timeframe was still to be determined)

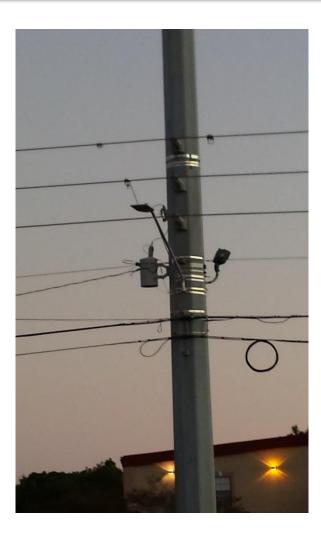
## Existing daytime conditions before lights



#### Existing nighttime conditions without lights









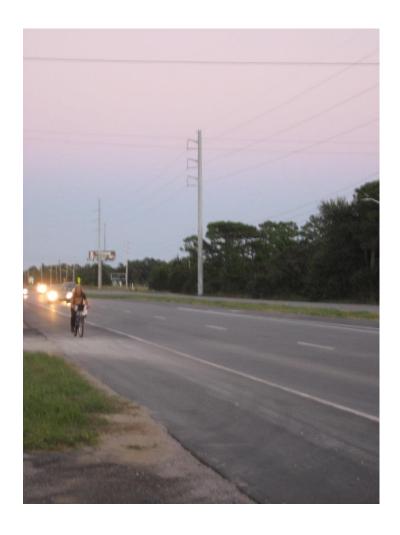


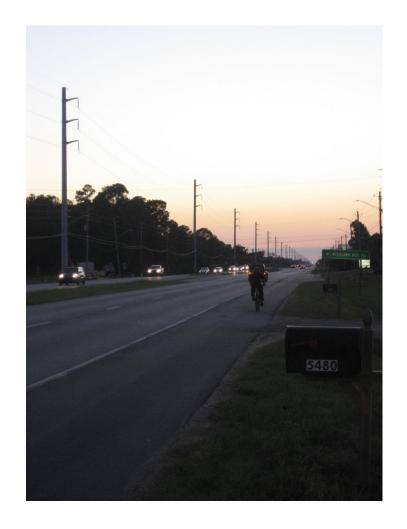










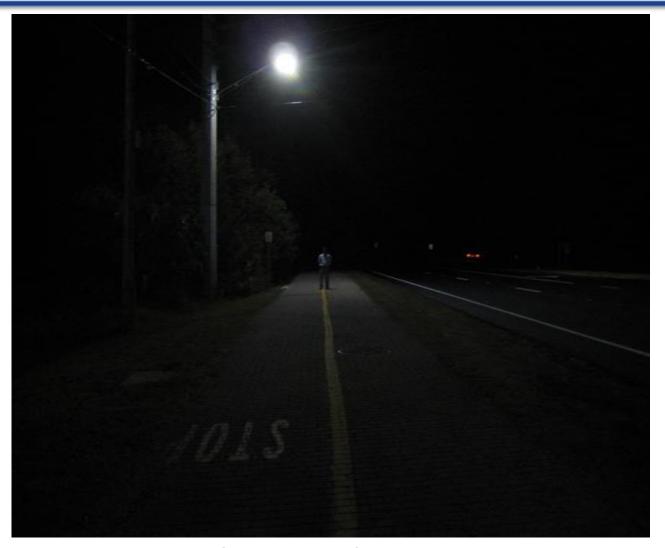




Standing 50 feet away from the camera No lighting in this area



50 feet away from camera



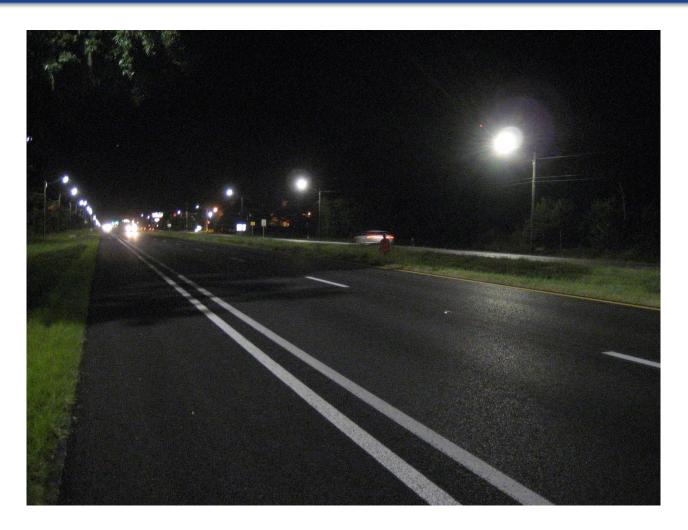
100 feet away from camera



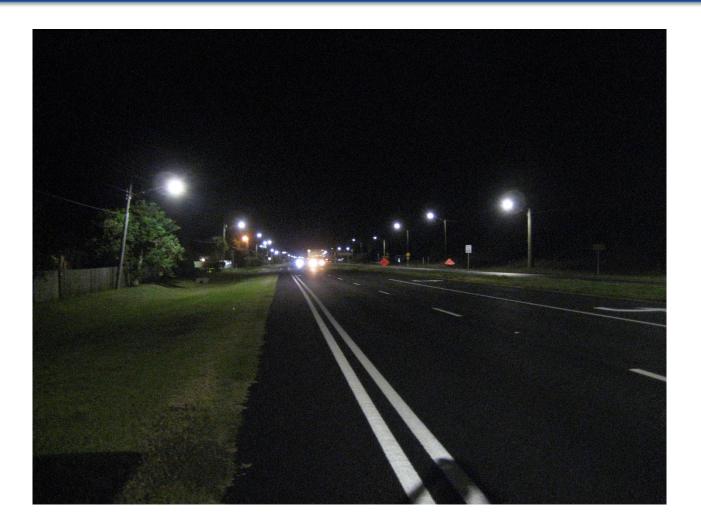


50 feet 100 feet

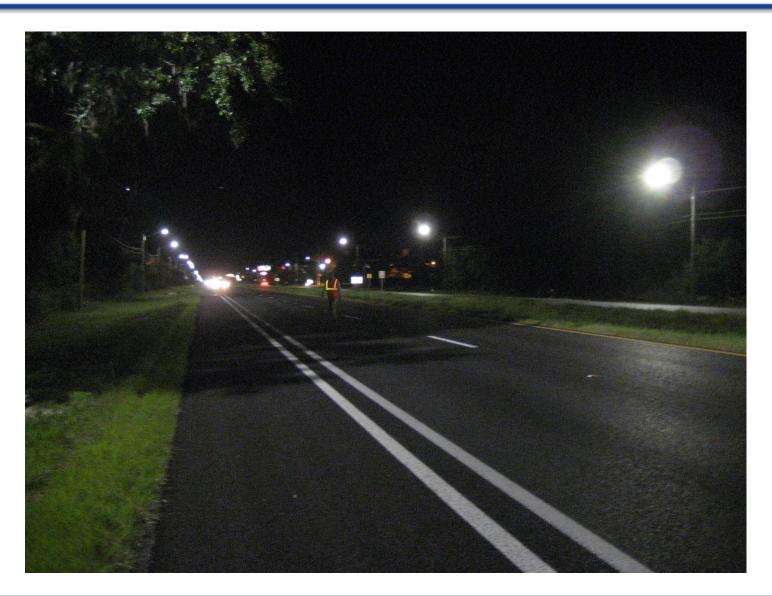
Beginning of lighting project – Looking west towards Naval Live Oaks Reserve

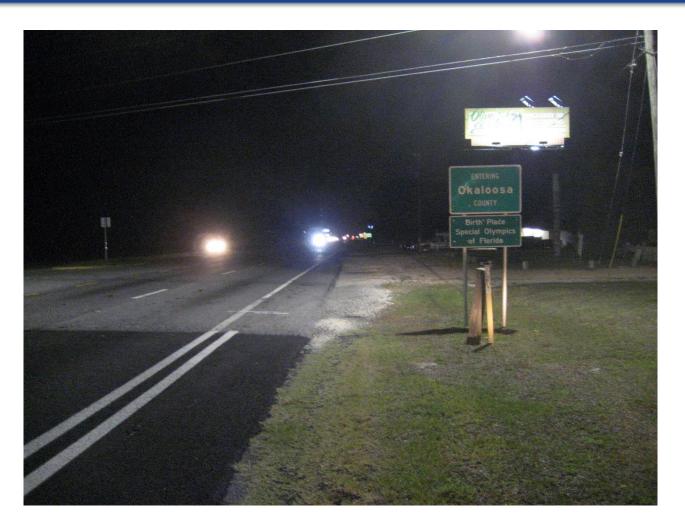


Tree obscures light – overall well lit

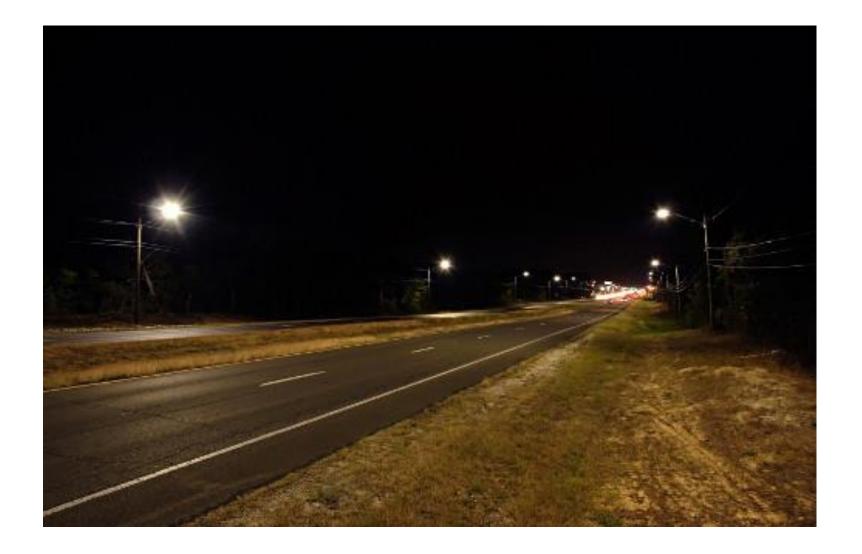


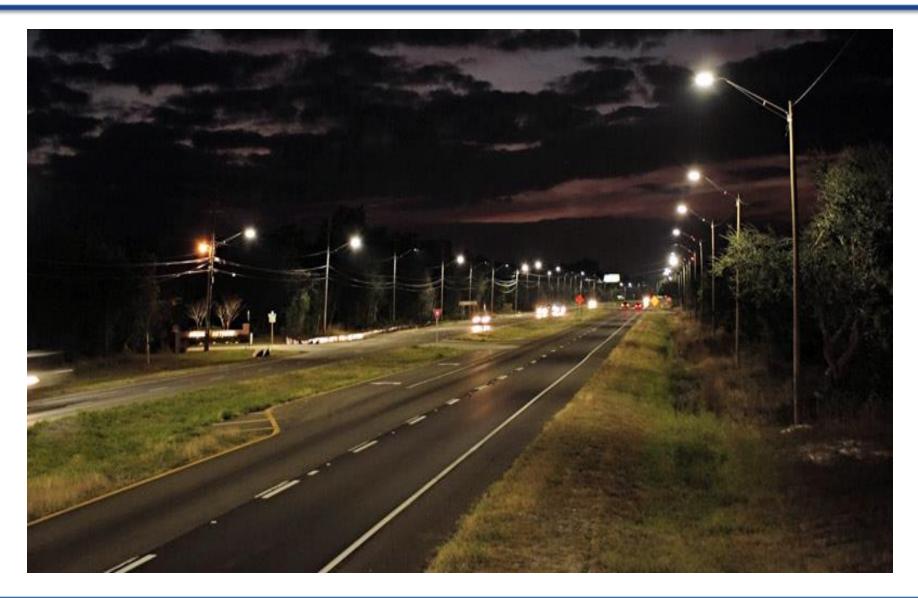
Looking west on US 98 towards lighted segment



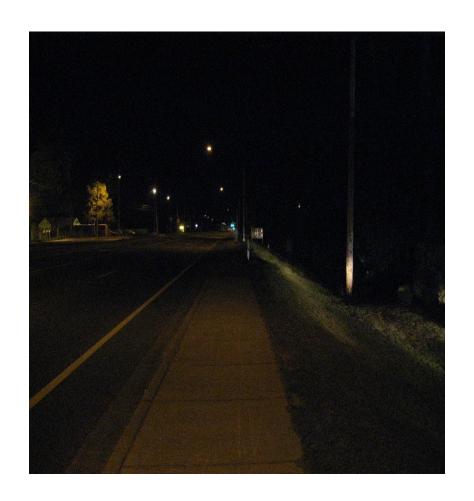


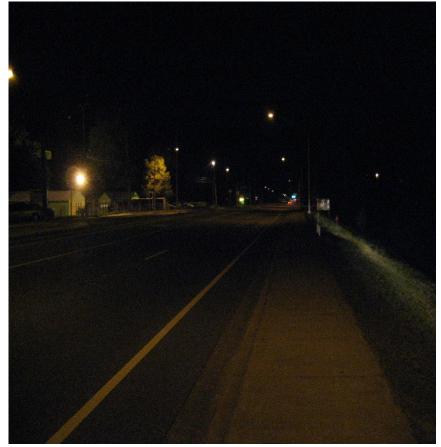
End of lighting project – Looking into Okaloosa County





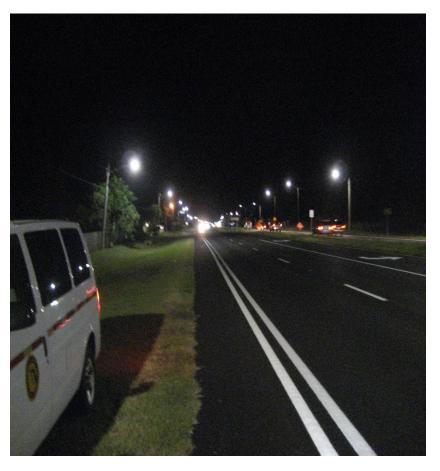
#### SR 87 State Lighting Project with High-Pressure Sodium Lighting

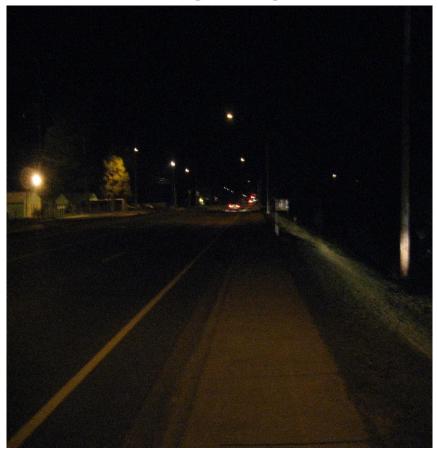




**LED Lighting** 

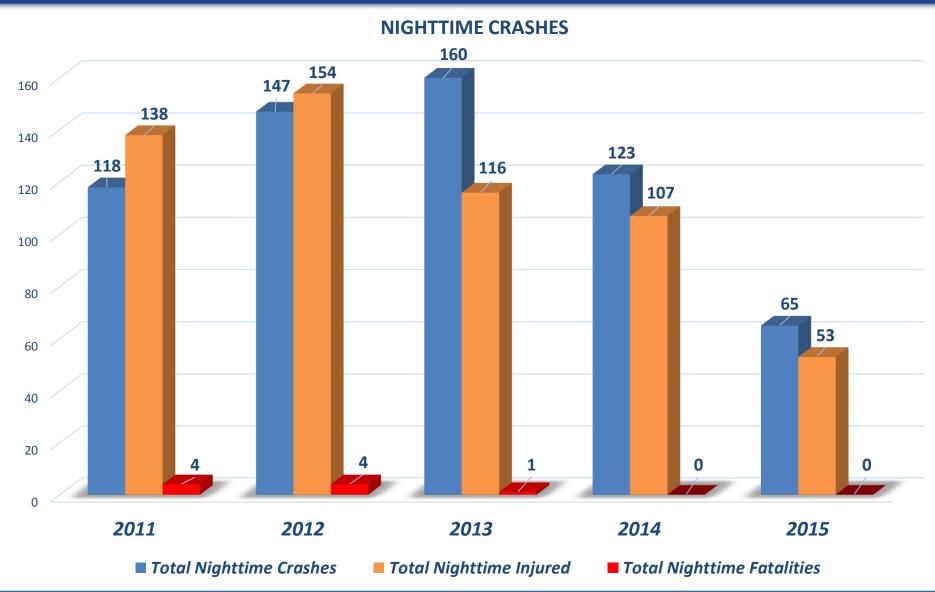
VS. High-Pressure Sodium Lighting





Sounds good,
looks good,
But did it help?

#### **STATISTICS**



#### **STATISTICS**



#### **GOOD NEWS**

**Editorial: A dose of good government** 

Pensacola News Journal Editorial Board January 8, 2014

"But in this case, it's worth noticing the cooperation between Santa Rosa County, the state of Florida and Gulf Power. Their work puts a spotlight on good, effective government that has improved a real problem and prevented future tragedies."

#### **POSITIVE OUTCOME**



# QUESTIONS

